CLAIMS

1. A backup belt assembly for a fusing system comprising:

a belt support member having at least one belt tracking surface;

a first nip forming roller supported by said belt support member so as to be rotatable with respect thereto; and

a backup belt disposed about said belt support member such that rotation of said backup belt causes a corresponding rotation of said first nip forming roller and further causes said backup belt to slide about said belt support member with respect to said at least one belt tracking surface.

2. The backup belt assembly according to claim 1, further comprising a second nip forming roller supported by said belt support member so as to be rotatable with respect thereto, said first and second nip forming rollers positioned with respect to each other so as to define a predetermined pressure profile when said backup belt assembly is urged against a fusing member.

3. The backup belt assembly according to claim 2, wherein said first nip forming roller has a larger nominal diameter than said second nip forming roller.

4. The backup belt assembly according to claim 2, wherein said first nip forming roller is more compliant than said second nip forming roller.

5. The backup belt assembly according to claim 2, wherein said first nip forming roller has a larger nominal diameter than said second nip forming roller, and said first nip forming roller is more compliant than said second nip forming roller.

6. The backup belt assembly according to claim 2, wherein said first nip forming roller comprises foam and said second nip forming roller comprises rubber.

7. The backup belt assembly according to claim 1, wherein said belt support member further comprises:

a generally elongate body having a first and second opposing axial end portions and a curved lower portion; and

a plurality of projections that extend radially from said curved lower portion of said body.

8. The backup belt assembly according to claim 7, wherein said backup belt is disposed about said belt support member such that said backup belt nominally clears said projections on said lower portion of said body.

9. The backup belt assembly according to claim 7, wherein said at least one belt tracking surface comprises a first belt tracking surface proximate to said first axial end portion of said body and a second belt tracking surface proximate to said second axial end portion of said body.

10. The backup belt assembly according to claim 7, wherein said belt support member further comprises a first nip roller support member secured to said body proximate to said first axial end portion and a second nip roller support member secured to said body proximate to said second axial end portion, wherein said first nip forming roller is rotatably mounted between said first and second nip roller support members such that said first nip forming roller is prevented from being independently repositionable with respect to said belt support member during fusing operations.

11. The backup belt assembly according to claim 10, further comprising at least one additional nip forming roller, wherein said first and second nip roller support members each comprise a

plurality of slots therein, each slot for supporting an associated one of said first nip forming roller and said at least one additional nip forming roller.

12. The backup belt assembly according to claim 11, wherein each slot further comprises a bearing for supporting an associated one of said first nip forming roller and said at least one additional nip forming roller.

13. The backup belt assembly according to claim 1, wherein said belt support member further comprises at least one support member therethrough for resisting deflection of said belt support member.

14. The backup belt assembly according to claim 1, wherein said backup belt comprises a polyimide backup belt.

15. The backup belt assembly according to claim 1, wherein said backup belt has a nominal thickness between 25 and 150 microns.

16. The backup belt assembly according to claim 15, wherein said backup belt has a nominal thickness of about 80 microns.

17. The backup belt assembly according to claim 1, wherein the roughness of at least one of said belt and said first nip forming roller is predetermined to obtain a desired frictional relationship therebetween.

18. The backup belt assembly according to claim 1, further comprising a heating element provided within said belt support member, wherein said backup belt comprises a thermally conductive belt.

19. The backup belt assembly according to claim 1, wherein said backup belt is thermally insulative such that said backup belt assembly is suitable for use with an external heating element.

20. A system for fusing an unfixed toner image to a media comprising:

a rotatable fusing member; and

a backup belt assembly positioned with respect to said fusing member so as to define a fusing region at a nip therebetween, wherein said backup belt assembly comprises:

a belt support member having at least one belt tracking surface;

a first nip forming roller supported by said belt support member so as to be rotatable with respect thereto; and

a backup belt disposed about said belt support member such that rotation of said backup belt causes a corresponding rotation of said first nip forming roller and further causes said backup belt to slide about said belt support member with respect to said at least one belt tracking surface.

21. The system according to claim 20, further comprising a second nip forming roller supported by said belt support member so as to be rotatable with respect thereto, wherein said first and second nip forming rollers are selected so as to achieve a predetermined pressure profile within said fusing region.

22. The system according to claim 21, wherein said first and second nip forming rollers are configured to achieve a relatively lower pressure portion of said fusing region proximate to where media enters said fusing region and a relatively higher pressure portion of said fusing region proximate to where said media exits said fusing region.

23. The system according to claim 21, wherein said second nip forming roller is spaced proximate to where said media exits said fusing region and said first nip forming roller is spaced between said second nip forming roller and where said media enters said fusing region.

24. The system according to claim 21, wherein said first nip forming roller has a larger nominal diameter than said second nip forming roller.

25. The system according to claim 21, wherein said first nip forming roller is more compliant than said second nip forming roller.

26. The system according to claim 21, wherein said first nip forming roller has a larger nominal diameter than said second nip forming roller, and said first nip forming roller is more compliant than said second nip forming roller.

27. The system according to claim 21, wherein said first and second nip forming rollers are prevented from being independently repositionable with respect to said belt support member during fusing operations.

28. The system according to claim 20, further comprising a release mechanism operatively configured to adjust said belt support member relative to said fusing member.

29. The system according to claim 20, wherein said fusing member comprises:

a core;

a heating element positioned so as to supply heat to said fusing region; and

at least one compressible layer formed about said core.

30. The system according to claim 29, wherein said core comprises a metal core having a nominal wall thickness in the range of 0.25 millimeters to 1.5 millimeters.

31. A fusing system comprising:

a rotatable fusing member;

a backup belt assembly; and

a release mechanism arranged to selectively reposition said backup belt assembly between a first position wherein said backup belt is urged against said fusing member so as to define said fusing region at the nip therebetween, and a second position wherein said backup belt assembly is released from said rotatable fusing member, wherein said backup belt assembly comprises

a belt support member having first and second belt tracking surfaces;

first and second nip forming rollers supported by said belt support member so as to be rotatable with respect thereto, wherein said first and second nip forming rollers are prevented from being independently repositionable with respect to said belt support member during fusing operations; and

a backup belt disposed about said belt support member such that rotation of said backup belt causes corresponding rotation of said first and second nip forming rollers and further causes said backup belt to slide about said belt support member with respect to said first and second belt tracking surfaces.

32. The fusing system according to claim 31, wherein said release mechanism is maintained in said second position during idle times of a corresponding electrophotographic device.

33. The fusing system according to claim 31, wherein said release mechanism is operatively configured to transition said backup belt assembly from said second position to said first position during fusing operations, and return said backup belt assembly to said second position subsequent to fusing operations.

34. The fusing system according to claim 31, wherein said release mechanism is maintained in said first position during fusing operations but is moved to said second position upon an occurrence of a media jam.